



Australian Government

AVIY0084 Conduct helicopter pre-solo exercises

Release: 1

AVIY0084 Conduct helicopter pre-solo exercises

Modification History

Release 1. This is the first release of this unit of competency in the AVI Aviation Training Package.

Application

This unit involves the skills and knowledge required to conduct helicopter pre-solo exercises in compliance with relevant regulatory requirements of the Civil Aviation Safety Authority (CASA) and national operating standards.

It includes performing pre-operational checks; climbing, turning and descending helicopter; performing air taxiing manoeuvres and air transiting manoeuvres. It also includes performing turns around the mast in addition to communicating and completing documentation.

This unit addresses aviation technical skill requirements (physical, mental and task-management abilities) related to aircraft operational duties of flight crew and contributes to safe and effective performance in complex aviation operational environments.

Operations are conducted as part of commercial and military aircraft activities across a variety of operational contexts within the Australian aviation industry.

Work is performed independently or under limited supervision within a single-pilot or multi-crew environment.

If the Manual of Standards is amended after the publication of this unit of competency, the delivery of the unit must be in accordance with the latest Manual of Standards as published by CASA.

Licensing, legislative, regulatory or certification requirements are applicable to this unit.

Pre-requisite Unit

Not applicable.

Competency Field

Y – Aircraft Operation and Traffic Management

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

PERFORMANCE CRITERIA

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Communicate face to face

- 1.1** Words are pronounced clearly, using an accent that does not cause difficulties in understanding
- 1.2** Information is conveyed in clearly structured sentences without confusion or ambiguity
- 1.3** Extensive vocabulary is used to accurately communicate on general and technical topics, without excessive use of jargon, slang, or colloquial language
- 1.4** Messages are communicated fluently without long pauses, repetition, or excessive false starts
- 1.5** Communications are responded to with actions that demonstrate that the information has been received and understood
- 1.6** Information is exchanged clearly in a variety of situations with both expert and non-expert English speakers while giving and receiving timely and appropriate responses
- 1.7** Techniques are used to validate communications

2 Conduct operational communication using an aeronautical radio

- 2.1** Plain English is used effectively when standard phraseology is inadequate
- 2.2** Appropriate responses to transmissions are received
- 2.3** Transmissions are responded to, and appropriate action is taken
- 2.4** Communication errors and misunderstandings are recognised and managed effectively
- 2.5** Clarification is sought in the time available if a message is unclear or uncertainty exists

3 Plan fuel requirements

- 3.1** Required fuel reserves are determined
- 3.2** Quantity of fuel required is determined taking into account operational requirements and relevant abnormal or emergency conditions and contingencies

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| | 3.3 | Total fuel required for the flight is determined |
| 4 | Manage fuel system | |
| | 4.1 | Fuel quantity on-board aircraft prior to flight is verified using two independent methods |
| | 4.2 | Fuel caps are secured and confirmed |
| | 4.3 | Fuel quality check prior to flight is performed |
| | 4.4 | Fuel drain cocks are closed |
| | 4.5 | Fuel usage during the flight is monitored |
| | 4.6 | Fuel pumps and engine controls are operated correctly |
| 5 | Maintain effective lookout | |
| | 5.1 | Traffic separation is maintained using a systematic visual scan technique at a rate determined by traffic density, visibility, and terrain |
| | 5.2 | Radio listening watch is maintained, and transmissions are interpreted to determine traffic location and intentions |
| | 5.3 | Airspace-cleared procedure is performed before commencing any manoeuvre |
| 6 | Comply with airspace requirements | |
| | 6.1 | Correct aeronautical charts are interpreted and used to maintain airspace compliance requirements |
| | 6.2 | Circuit departure is performed |
| | 6.3 | Helicopter is maintained within a specified area and/or track while complying with air traffic requirements, controlled or restricted airspace conditions or limitations while reacting to factors that affect the safe progress of a flight |
| | 6.4 | Orientation is maintained to geographical features with the aid of suitable charts and maps |
| | 6.5 | Circuit join is conducted |
| 7 | Recognise and manage threats | |
| | 7.1 | Relevant environmental or operational threats that are likely to affect the safety of the flight are identified |
| | 7.2 | Competing priorities and demands that may represent a threat to the safety of the flight are identified |
| | 7.3 | Countermeasures to manage threats are developed and implemented |

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| | 7.4 | Flight progress is monitored and assessed to ensure a safe outcome, or actions modified when a safe outcome is not assured |
| 8 Recognise and manage errors | 8.1 | Checklists and standard operating procedures (SOPs) are applied to prevent aircraft handling, procedural or communication errors |
| | 8.2 | Committed errors before safety is affected or the aircraft enters an undesired state are identified |
| | 8.3 | Countermeasures are implemented to prevent errors or actions taken in the time available to correct errors before the aircraft enters an undesired state |
| 9 Recognise and manage undesired aircraft state | 9.1 | Undesired aircraft state is recognised |
| | 9.2 | Tasks are prioritised to ensure an undesired aircraft state is managed effectively |
| | 9.3 | Non-normal or emergency situations are recognised |
| | 9.4 | Control of aircraft flight path is maintained during abnormal and emergency response procedures |
| | 9.5 | Affected aircraft system or sub-system is identified and confirmed |
| | 9.6 | Checklist procedures are recalled and implemented during abnormal and emergency situations using appropriate techniques |
| | 9.7 | Non-normal or emergency procedures are performed in accordance with relevant workplace and emergency procedures and regulatory requirements |
| | 9.8 | Corrective actions are applied to recover an undesired aircraft state in a safe and timely manner |
| | 9.9 | Course of action is evaluated and revised to achieve safest outcomes |
| | 9.10 | Location and operation of emergency systems applicable to aircraft type are explained |
| 10 Conduct pre-flight actions and procedures | 10.1 | Information contained in the required pre-flight operational documentation is obtained, interpreted, and applied |

- 10.2** Aircraft weight and balance is confirmed
 - 10.3** Pre- and post-flight maintenance release (flight technical log) and flight administration is completed in accordance with regulatory requirements and/or operations manual
 - 10.4** Aircraft serviceability is determined by daily inspection, and certification of daily inspection in maintenance release (flight and technical log) is completed in accordance with regulations
 - 10.5** Equipment and documentation, as required by regulation, is identified, and secured in aircraft
 - 10.6** Hazards are identified, risks are assessed, and hazard management implemented
 - 10.7** Internal and external checks are completed in accordance with approved checklist
- 11 Start engine and rotor**
 - 11.1** Helicopter is positioned with a view to safety and rotor clearance when starting engine and rotors
 - 11.2** Pre-start and start actions are performed
 - 11.3** Blade sailing is controlled during start by appropriate positioning of helicopter and use of cyclic pitch
 - 11.4** Rotor is engaged
 - 11.5** Control main rotor disc and anti-torque system
- 12 Climb helicopter**
 - 12.1** From straight and level flight, attitude and power is adjusted to achieve a climb at normal, best rate (V_y), best angle (V_x) and cruise climb flight configurations
 - 12.2** Aircraft systems, sub-systems (equipment) and devices applicable to aircraft type and task are operated and managed
 - 12.3** Aircraft systems, sub-systems (equipment) and devices are monitored using a systematic scan technique
 - 12.4** Aircraft systems and flight environment information are analysed to identify actual and potential threats or errors
 - 12.5** Automated aircraft systems are utilised to manage cockpit workload

- 12.6** Hazards are identified, risks are assessed, and hazard management implemented
- 12.7** Checklist procedures are completed as appropriate to aircraft system
- 12.8** Correct altimeter settings are set
- 12.9** Helicopter is maintained in balanced flight during adjustments to power
- 12.10** Power is maintained as altitude increases
- 12.11** Helicopter is levelled off from climb at nominated altitude
- 12.12** Lookout is maintained during climb using a systematic scan technique at a rate determined by traffic density, visibility, and terrain
- 12.13** Situational awareness is maintained

13 Descend helicopter

- 13.1** Attitude and power are adjusted to enter and maintain a descent from straight and level
- 13.2** Helicopter is levelled from a descent at a nominated altitude
- 13.3** Lookout is maintained using a systematic scan technique at a rate determined by traffic density, visibility, or terrain
- 13.4** Clearance ahead and below is maintained
- 13.5** Air traffic control (ATC) altitude restrictions are observed as required
- 13.6** Helicopter does not exceed aircraft flight manual limits during descent
- 13.7** Correct altimeter settings are set
- 13.8** Situational awareness is maintained at all times during helicopter descent

14 Turn helicopter

- 14.1** Attitude and power are adjusted to enter and maintain turns at varying rates from level, climbing and descending flight to achieve nominated tracks, during level turns, climbing turns with 20° bank angle and

powered descending turn with 30° bank angle

14.2 Helicopter is rolled out from the turn to achieve a nominated heading or geographical feature

14.3 Helicopter is balanced and trimmed, as applicable

14.4 Lookout is maintained in direction of turn and above or below using a systematic scan technique at a rate determined by traffic density, visibility and terrain

14.5 Engine operating limits are not exceeded

15 Conduct lift-off to hover and perform hover checks

15.1 Aircraft performance is calculated for the flight

15.2 Pre-take-off checks are performed

15.3 Flight controls are set to prepare for lift-off to the hover

15.4 Flight and power controls are used to lift helicopter off the surface to a stable hover at the appropriate height for the helicopter while controlling heading

15.5 Wind effect is anticipated and accounted for with appropriate control inputs to maintain position over nominated hover point

15.6 Awareness of adverse effects of rotor downwash on surrounding aircraft, people, objects and environment is demonstrated

15.7 Hover checks are performed

15.8 Flight control functions, centre of gravity and hover power requirements are checked

15.9 A hover taxi manoeuvre at a constant and safe hover height, is commenced, maintained and stopped while maintaining power and rotor revolutions per minute (RRPM) within the limits

15.10 Coordinated corrective action is used to counter the effects of wind

15.11 Implications of environmental conditions are assessed and appropriate compensation is made

15.12 Helicopter is maintained clear of obstructions

- 15.13** Lookout is maintained using a systematic scan technique at a rate determined by traffic density, visibility or terrain
- 16 Perform turns around the mast**
- 16.1** Helicopter is turned around the mast while maintaining a constant height at a specified rate of turn
- 16.2** Turn is completed on a nominated heading
- 16.3** Controlled corrective action is used to control the effects of wind
- 16.4** Helicopter is maintained clear of obstructions
- 16.5** Lookout is maintained using a systematic scan technique at a rate determined by traffic density, visibility, obstructions and terrain
- 16.6** Revolutions per minute (RPM) is managed within limits during the turn
- 17 Perform air taxiing manoeuvres**
- 17.1** Helicopter is manoeuvred over the ground on a prescribed track at constant height associated with ground effect and speed adjusted to suit helicopter type, surface conditions, congestion, maintenance of control and to avoid collision with obstacles or other aircraft
- 17.2** Landing gear is aligned as far as operational limitations allow, with the direction of travel
- 17.3** Awareness of adverse effects of rotor downwash on surrounding aircraft, people, objects and environment is demonstrated
- 17.4** RPM is managed within normal operating limits
- 18 Perform air transiting**
- 18.1** Transit clearance is obtained and complies with ATC instructions (if applicable)
- 18.2** Helicopter is manoeuvred, while allowing for prevailing conditions, over a prescribed track at a height not above 100 ft above ground level (AGL) at airspeeds greater than speeds used for air taxiing
- 18.3** Movement is limited within the aerodrome boundaries, without incident
- 18.4** Helicopter remains clear of manufacturer's height-velocity diagram avoid area

- 18.5** Height is maintained
- 18.6** Instruments, switches or devices are manipulated, when safe to do so, including when the release of the collective pitch level is required, while maintaining height, heading, speed and attitude and not exceeding RPM or power limits
- 18.7** Conditions that could lead to loss of tail rotor or anti-torque effectiveness are avoided
- 18.8** Helicopter is aligned with track, or balances, as applicable
- 18.9** Air transit ground speed is adjusted to suit helicopter type, traffic conditions, congestion and maintenance of control and to avoid collision with obstacles or other aircraft
- 18.10** RRPM is maintained within normal operating limits
- 18.11** Adverse effect of rotor wash on other aircraft, facilities, loose objects and personnel are avoided
- 18.12** Final approach path is clear of conflicting traffic
- 19 Hover helicopter in crosswind and tailwind**
 - 19.1** Helicopter is maintained in hovering flight remaining over a nominated hover point at a nominated height and heading in cross and tail winds
 - 19.2** Coordinated corrective action is used to maintain a constant rate of turn and counter the effects of wind
- 20 Perform turns around nose and tail**
 - 20.1** Helicopter is turned around a nominated point on or forward of the nose while maintaining a constant height and specified rate of movement around that point
 - 20.2** Helicopter is turned around a nominated point on or aft of the tail while maintaining a constant height and specified rate of movement around that point
 - 20.3** Controlled corrective action is taken to counter the effects of wind
 - 20.4** Helicopter is maintained clear of obstructions during turning manoeuvres
 - 20.5** Lookout is maintained using a systematic scan technique at a rate determined by traffic density, visibility,

- obstructions and terrain
- 20.6** Turns in a specified direction are commenced and stopped at a specified heading
 - 20.7** RPM is managed within limits during the turn
 - 20.8** Ground track is maintained at a constant distance from the nominated point
 - 20.9** Anti-torque pedals are used to ensure helicopter nose or tail is pointed at the nominated turning point
- 21 Perform sideways and rearwards flight**
- 21.1** Helicopter is transitioned from static hover to sideways and rearward flight
 - 21.2** Lookout is maintained in direction of flight using a systematic scan technique at a rate determined by traffic density, visibility, obstructions and terrain
 - 21.3** Rearward movement is only conducted after visually checking behind helicopter, and height is adjusted as required
 - 21.4** Helicopter directional control is maintained and manoeuvred clear of obstructions during sideways and backwards flight manoeuvres
 - 21.5** RPM is managed within limits during the turn
 - 21.6** Rate of movement of helicopter is maintained at a safe speed
 - 21.7** Sideways and rearward flight is terminated over a nominated hover point
- 22 Land from the hover**
- 22.1** Pre-landing checks are complete if applicable
 - 22.2** Helicopter is lowered on to a nominated point from hovering flight using a controlled rate of descent, without adverse longitudinal, lateral, yawing or rolling movements
 - 22.3** Helicopter is stable on its landing gear prior to fully lowering collective
 - 22.4** Post-landing checks are performed
- 23 Manage a mishandled landing**
- 23.1** An adverse landing situation is identified when developing

	23.2	Action is taken to discontinue the landing and return to a safe hover
24 Manage a mishandled lift-off	24.1	An adverse lift-off situation is identified when it is developing
	24.2	Action is taken to discontinue the lift-off and return to the ground safely
25 Stop engine	25.1	Shutdown and post-shutdown actions are performed
	25.2	Blade sailing is controlled during shut down by correct positioning of helicopter and use of cyclic pitch
	25.3	Rotor brake is operated correctly, as applicable
	25.4	Control main rotor disc and anti-torque system
26 Complete post-flight actions and procedures	26.1	Post-flight inspection is conducted and the aircraft is secured if applicable
	26.2	All required post-flight administration documentation is completed
	26.3	Flight equipment and documentation are removed from aircraft
	26.4	Aircraft is secured in accordance with manufacturer specifications and organisational procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the AVI Aviation Training Package Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is not equivalent to AVIY0048 Taxi helicopter.

This unit replaces and is not equivalent to AVIY0059 Control helicopter on the ground.

Links

Companion Volume Implementation Guides are found in VETNet' -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=4725260a-0af3-4daf-912b-ef1c2f3e5816>

Assessment Requirements for AVIY0084 Conduct helicopter pre-solo exercises

Modification History

Release 1. This is the first release of this unit of competency in the AVI Aviation Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria on at least one occasion and include:

- accessing and applying relevant regulations, orders and information to the performance of the required planning, pre- and post-flight administrative functions
- adapting to differences in equipment and operating environment in accordance with standard operating procedures (SOPs)
- applying air safety practices and regulations
- applying precautions and required actions to minimise, control or eliminate identified hazards
- applying relevant helicopter aeronautical knowledge
- applying relevant legislation and workplace procedures
- calculating aircraft performance for all phases of flight
- calculating fuel requirements
- calculating rotorcraft hover performance (for rotorcraft only)
- calculating take-off and landing performance
- certifying aircraft flight technical log
- communicating effectively with others
- completing internal and external aircraft checks
- completing pre and post-flight actions and procedures
- communicating effectively with others when taxiing helicopter
- completing relevant documentation complying with flight authorisations
- identifying and correctly using relevant equipment
- implementing contingency plans
- implementing work health and safety (WHS)/occupational health and safety (OHS) procedures and relevant regulations
- interpreting and applying air traffic control (ATC) instructions
- interpreting/using a helicopter manufacturer height-velocity diagram/graph
- modifying activities depending on workplace contingencies, situations and environments
- monitoring and anticipating operational problems and hazards and taking appropriate actions
- monitoring work activities in terms of planned schedule
- obtaining, interpreting and applying, operational documentation
- operating electronic communications equipment to required protocol
- reading, interpreting and following relevant regulations, instructions, procedures, information

and signs

- reporting and/or rectifying identified problems promptly in accordance with regulatory requirements and workplace procedures
- selecting and using relevant equipment
- selecting and using required personal protective equipment (PPE) conforming to industry and WHS/OHS standards
- setting local or area barometric pressure adjusted for sea level (QNH) at appropriate stages of flight
- using instruments to monitor helicopter performance
- working collaboratively with others when taxiing helicopter
- working systematically with required attention to detail without injury to self or others, or damage to goods or equipment.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- height-velocity diagram
- adverse effects of rotor wash
- ground resonance and action to be taken when it occurs
- taxiway and runway markings
- loss of tail rotor effectiveness and action to be taken when it occurs
- hazards and risks associated with conducting air taxi and air transit manoeuvres
- aircraft entry and exit procedures
- aircraft maintenance release requirements and procedures for intended flight
- airworthiness requirements applicable to aircraft category and class or type
- adverse effects of rotor wash
- aerodrome and helicopter landing site markings and their meanings
- application of a height/velocity diagram/graph
- basic principles of aerodynamics
- basic radiotelephony phraseology specified in the Aeronautical Information Package (AIP) for visual flight rules (VFR) operations
- Civil Aviation Safety Regulation (CASR) Part 61 Manual of Standards Schedule 3 Aeronautical Knowledge relevant to helicopter operations
- causes and effects of ground resonance and related action that should be taken
- causes and effects of loss of tail rotor effectiveness and related action that should be taken
- characteristics of radio waves, wave propagation, transmission and reception (except aircrew)
- checklist use and procedures
- common aviation terminology
- components of an aeronautical radio system
- daily inspection procedures, including rectification actions
- documented radio procedures relevant to the VFR
- effects of rotor wash and related precautions that should be taken

- flight-specific reports, including incident reporting
- functions and effects of all helicopter controls
- fuel requirements for day VFR flight operation
- ground resonance and action to be taken when it occurs
- hazards and risks associated with conducting air taxi and air transit manoeuvres, and precautions for controlling the risks
- height-velocity diagram
- helicopter braking and steering systems
- interpretation of meteorological and Notice to Airmen (NOTAM) information
- light and marshalling signals relevant to helicopter operations
- local ATC procedures and instructions
- local aerodrome requirements
- local weather patterns
- loss of tail rotor effectiveness and action to be taken when it occurs
- minimum equipment list for applicable aircraft type
- pre- and post-flight planning administration procedures, including flight authorisations
- problems that may occur when taxiing a helicopter and appropriate action that should be taken in each case
- purpose and functions of helicopter systems
- the phonetic alphabet
- responsibilities of an aeronautical radio operator (except aircrew)
- relevant sections of CASRs and Civil Aviation Orders
- relevant WHS/OHS and environmental procedures and regulations
- safe equipment stowage
- taxiway and runway markings.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations. Where this is not appropriate, assessment must occur in simulated workplace operational situations that reflect workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or simulations
- acceptable means of simulation assessment
- applicable documentation, including workplace procedures, regulations, codes of practice and

operation manuals

- relevant materials, tools, equipment and PPE currently used in industry.

Links

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